

BEFORE THE PUBLIC SERVICE COMMISSION

OF

SOUTH CAROLINA

DOCKET No. 2021-153-S

IN RE: Application of Palmetto Wastewater)
Reclamation, Inc. for an Adjustment of)
Rates and Charges)
)
)

**REBUTTAL
TESTIMONY OF
PAUL R. MOUL**

October 14, 2021

REBUTTAL TESTIMONY OF PAUL R. MOUL**INTRODUCTION**

1

2 **Q. Please state your name, occupation, and business address.**

3 A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield,
4 New Jersey 08033-3062. I am Managing Consultant at the firm P. Moul & Associates, an
5 independent financial and regulatory consulting firm.

6 **Q. Did you previously submit testimony in this proceeding on behalf of Palmetto**
7 **Wastewater Reclamation, Inc. (“PWR” or the “Company”)?**

8 A. Yes. I submitted my direct testimony on September 2, 2021.

9 **Q. What is the purpose of your rebuttal testimony?**

10 A. My rebuttal testimony responds to the direct testimony submitted by David J. Garrett, a
11 witness appearing on behalf of the Office of Regulatory Staff (“ORS”), and Aaron L.
12 Rothschild, a witness appearing on behalf of the Department of Consumer Affairs
13 (“DCA”). If I fail to address each and every issue in the testimonies of Messrs. Garrett
14 and Rothschild, it does not imply agreement with those issues.

15 **Q. Will it be necessary to supplement this rebuttal testimony after it is filed with the**
16 **Commission?**

17 A. It may be a necessary to supplement my rebuttal testimony after it is filed. The procedural
18 schedule in this case required the filing of the rebuttal 14 days after the testimony by the
19 opposing parties was filed. Responses to the data requests that were submitted to the ORS
20 are due 20 days after service.¹ As such, the responses to the data requests will arrive after
21 the filing of the rebuttal testimony, which may require revisions to the filed rebuttal
22 testimony.

¹ The DCA responses have already been received.

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1 **Q. Why is the rate of return set in this rate case so important to an investor owned utility**
2 **(“IOU”) as compared to the way that rates are set for a municipally owned utility**
3 **(“MOU”)?**

4 **A. The rate setting approach differs markedly for an IOU and a MOU. The most significant**
5 **difference among the two types of utilities is the rate recovery for the “return of capital”**
6 **and “return on capital.” The MOUs employ a debt service recovery approach that provides**
7 **for payment of principal (return of capital), interest expense (return on capital), and a**
8 **margin (coverage in excess of 1.0 times debt service). Unlike MOUs, the rate base/rate**
9 **of return approach is used for IOUs to provide for return of and return on capital. Return**
10 **of capital for an IOU is provided through depreciation expense related to the assets in the**
11 **rate base. Return on capital for an IOU is provided through the rate of return multiplied**
12 **by the rate base. Within the rate of return, there is a component for interest expenses**
13 **(embedded cost of debt times the debt ratio times the rate base) and a component for the**
14 **return on equity (cost of equity times the common equity ratio times the rate base). The**
15 **component for the return on equity within the cost of equity determination must be**
16 **adequate to satisfy the comparability standard and must be adequate for the IOU to attract**
17 **additional capital to fulfill its public service responsibility.**

18 **Q. What are the key aspects of the rate of return that the South Carolina Public Service**
19 **Commission (“Commission”) should consider when deciding the rate of return in**
20 **this case?**

21 **A. Almost all issues involving the Company’s cost of capital are in dispute. Mr. Garrett has**
22 **opposed the actual PWR capital structure, and instead proposed a hypothetical capital**
23 **structure. Mr. Rothschild has also proposed an erroneous capital structure. In each**
24 **instance, the equity returns proposed by the opposing witnesses are entirely too low to**

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1 reflect the risks of PWR and its prospective cost of capital. The cost of debt is also an
2 issue for Mr. Rothschild. Aside from technical issues that I will discuss later in my rebuttal
3 testimony, the Commission should take into consideration a rate of return that will reflect
4 and be supportive of the Company's financial and risk profile. As I explain below, the
5 opposing party recommendations fail to adequately consider this point and thereby
6 significantly understate the cost of common equity in this proceeding.

7 **Q. Please summarize the key points of your rebuttal testimony.**

8 A. My key points are:

- 9 • Discounted Cash Flow ("DCF") – A variety of DCF results are clearly too low to provide
10 a reliable measure of the cost of equity.
- 11 • Most of the DCF growth rates considered by Mr. Garrett are not specific to his proxy
12 group or any of the companies included in his proxy group. Thus, those growth rates are
13 not reflective of the type of growth expected by investors in these companies. His
14 alternative is the growth rates that I developed in this case.
- 15 • The DCF growth rate used by Mr. Rothschild provides an inappropriate measure of
16 investor expected returns. Analysts' projections of future growth are the only reasonable
17 evidence of the DCF growth rate and the retention growth rate that he used is entirely
18 inappropriate.
- 19 • A multistage DCF model, as proposed by Mr. Rothschild is unnecessary for this case.
20 What the multistage DCF model does show is that this method provides an entirely
21 unrealistic return that is much too low.
- 22 • Leverage Adjustment – The DCA and ORS witnesses have not refuted the accuracy of the
23 Company's leverage adjustments to the DCF and beta component of the Capital Asset

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Pricing Model ("CAPM").

- CAPM – A reasonable application of the CAPM mandates using prospective 30-year Treasury bond yields, leverage adjusted betas, and size adjustment and indicates an upward adjustment to an 11% cost of equity.
- Additional methods should also be considered when establishing the cost of equity for PWR.

Q. How should the rate of return set by the Commission support the Company's financial profile?

A. The Commission should set the Company's return on equity at a level that will attract investment in the Company to ensure the Company's financial ability to render safe and reliable service. Applying this principle, the Commission should reject the proposals by Messrs. Garrett and Rothschild to cut the Company's return on common equity to 8.90% and 7.31%, respectively. These proposed returns are unreasonable because they are much too low to allow PWR to achieve the level of returns that meet investor expectations. Equity returns of this magnitude would be viewed by investors as unsupportive of the Company's financial condition and would signal a disincentive for further investment in the Company.

Q. Are there additional issues that the Commission should consider when setting the Company's return?

A. Yes. The investment community would be very concerned if the Commission were to adopt either of the positions of the DCA or ORS. If it were to do so, investors would see South Carolina regulation as less supportive of its utilities. The return on equity used by the Commission to set rates embodies in a single numerical value a clear signal of regulatory support for the financial strength of the utilities that it regulates. Although cost

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1 allocations, rate design issues, and regulatory policies relative to the cost of service are
2 important considerations, the opportunity to achieve a reasonable return on equity
3 represents a direct signal to the investment community of regulatory support (or lack
4 thereof) for the utility's financial strength. In a single figure, the return on equity utilized
5 to set rates provides a common and widely understood benchmark that can be compared
6 from one company to another and is the basis by which returns on all financial assets
7 (stocks – both utility and non-regulated, bonds, money market instruments, and so forth)
8 can be measured. So, while varying degrees of sophistication are required to interpret the
9 meaning of specific Commission policies on technical matters, the return on equity figure
10 is universally understood and communicates to investors the types of returns that they can
11 reasonably expect from an investment in utilities operating in South Carolina.

12 The rates of return on common equity of 8.90% proposed by Mr. Garrett and 7.31%
13 proposed by Mr. Rothschild are seriously deficient and will not provide PWR with the
14 opportunity to earn a reasonable cost of capital for the test year.

15 **Q. In a recent rate case for Dominion Energy South Carolina, the Commission granted**
16 **that company a 9.50% return on equity. Does this provide a benchmark in this case**
17 **for PWR?**

18 A. Yes, it does. Even though this equity return was established for a combination electric
19 and gas utility, it provides a meaningful point of reference in this case for PWR. The
20 9.50% return that was granted in November 2020 reflects capital market fundamentals that
21 are not dissimilar to today.

22 **Q. How do the proposed returns submitted by Messrs. Garrett and Rothschild fit the**
23 **trend in capital costs on a prospective basis?**

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1 A. They fail to reflect the trend toward a much higher level of capital costs. This is shown
2 by the direction in interest rates. The yield on 30-year Treasury bonds moved above the
3 2% level beginning in February 2021. In comparison, those yields closed out 2020 at
4 1.67% for December. By October 7, 2021, the yield on 30-year Treasury bonds had moved
5 to 2.13%, or an increase of 0.46% (or 27%). One reason that explains the higher long-
6 term interest rates can be traced to investor expectations of higher inflation. Indeed, there
7 has been an upward burst in inflation recently following very low inflation that existed
8 during the pandemic. Indeed, higher inflation today is revealed by a 5.9% increase in
9 social security payments, the nearly largest one-year increase in four decades. The FOMC
10 has signaled that it plans to taper its bond buying program (i.e., quantitative easing) in
11 November 2021 and to end completely by mid-2022. The Fed Funds rate is also likely to
12 increase from very low levels that existed during the pandemic. Higher interest rates
13 clearly point to higher capital costs prospectively. I will describe the forecasts of interest
14 rates and the continuation of this trend below.

15 **Q: Should the Commission consider the future trend in capital cost rates when deciding**
16 **the return on equity issue in this case?**

17 A: Yes. Unlike Messrs. Garrett and Rothschild who take a backward view of interest rates,
18 accommodative FOMC policy is nearing an end and prospectively higher interest rates
19 will increase capital costs for utilities. To gain a consensus view of future interest rates, I
20 tabulated the forecasts of yields on 10-year Treasury notes published by a variety of well
21 recognized and investor-influencing sources. I chose the 10-year Treasury note because
22 it is available on a consistent basis across all sources. The comparisons are:

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	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	Change in Basis Points
<u>Blue Chip</u>	1.50%	1.30%	1.70%	2.00%	2.40%	2.60%	110
<u>Value Line</u>	1.30%	1.60%	2.00%	2.30%	2.50%		120
<u>EIA</u>	0.76%	1.09%	1.36%	1.57%	1.80%	2.03%	127
<u>CBO</u>	1.61%	1.90%	2.03%	2.29%	2.57%	2.79%	118

1 The universal consensus is that interest rates will increase in the future. The
2 FOMC policy is in the process of moving from an extremely accommodative to more
3 normal monetary policy. The intentions of the FOMC indicate a trough in interest rates
4 has passed and the forecasts show interest rates will rise. The Commission should take
5 the forecast trend toward higher interest rates into account when it sets the cost of equity
6 for PWR. As such, the cost of equity analysis by Messrs. Garrett and Rothschild is
7 defective because they have not taken into account the general consensus that interest rates
8 will increase in the future from current levels. It is therefore, indicated that a higher
9 authorized returns are warranted in the face of expected higher interest rates.

10 **Q. In his analysis, Mr. Rothschild considers the Volatility Index (i.e., "VIX") and**
11 **concludes from it that stock market volatility justifies a low equity return for the**
12 **Company in this case. Please respond.**

13 A. I agree with Mr. Rothschild that the VIX is a valid measure of expected stock market
14 volatility and one which I follow routinely. This index is provided by the OBOE Global
15 Markets (formerly Chicago Board Options Exchange) and is a gauge of volatility in the
16 equity market and, hence, provides a measure of risk. It is well-established that greater
17 volatility indicates higher risk, which, all else equal, translates into a higher cost of equity.
18 It is widely accepted that high readings for the VIX are often accompanied by bearish

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1 sentiment and a low VIX is associated with bullish sentiment. The trading pattern of the
 2 VIX is typically inverse to the level of stock prices. That is to say, the VIX increases
 3 when stock prices are falling and the VIX declines when stock prices rise. This situation
 4 is sometimes associated with increases in the cost of equity when the VIX increases and
 5 vis-a-versa. The overall range of the index since 1990 has been 8.56 to 89.53. The peak
 6 in the index occurred on October 1, 2008, during the Financial Crisis. The lowest VIX
 7 occurred on November 1, 2017, during the previous bull market. The recent VIX history
 8 has been:

<u>Year</u>	<u>Average VIX</u>
2017	12.12
2018	18.46
2019	16.33
2020	32.21
2021 YTD	22.41

9 We can see that the VIX has spiked upward with the COVID-19 pandemic and the
 10 onset of the recession. While volatility in the stock market has subsided since the very
 11 beginning of the pandemic and recession, it continues to significantly exceed levels prior
 12 thereto as measured by the VIX. The current level of risk associated with common stocks,
 13 as revealed by the higher VIX in 2021, warrants a higher equity return at this time because
 14 the higher stock market volatility signifies higher risk that requires higher returns in
 15 compensation for the higher risk. Hence, the risk for common equity, which translates
 16 into the cost of equity, does not support a low equity return suggested by Messrs. Garrett
 17 and Rothschild.

18 **Q. How is the remainder of your testimony organized?**

19 A. I will cover the issues of (i) capital structure, (ii) cost of debt, (iii) the composition of the

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1 proxy (*i.e.*, barometer) group, (iv) the weight to be given to the DCF method, (v) the DCF
2 growth rate, (vi) the leverage adjustment to the DCF and CAPM methods, (vii) the CAPM
3 method, (viii) the Risk Premium analysis, and (ix) Comparable Earnings.

CAPITAL STRUCTURE

4
5 **Q. Is there a difference in the proposed capital structure ratios utilized by the rate of**
6 **return witnesses in this case?**

7 A. Yes. Messrs. Garrett and Rothschild are advocating an erroneous capital structure for
8 PWR.

9 **Q. What capital structure does Mr. Garrett propose?**

10 A. Mr. Garrett has proposed a hypothetical capital structure for PWR without ever
11 demonstrating that the Company's proposed capital structure is unreasonable. Rather, his
12 proposed capital structure is simply designed to lower the Company's revenue
13 requirement. In reaching his conclusion on capital structure ratios, Mr. Garrett performed
14 three analyses. These are: (i) a calculation of the cost of capital at various debt ratios, (ii)
15 the debt ratios of the companies in his proxy group, and (iii) the debt ratio of thousands of
16 other companies. He seems to favor option (ii) but does not propose a debt ratio as high
17 as he reports for his proxy group.

18 **Q. Is there any basis to deviate from the Company's actual capital structure to set the**
19 **rate of return in this case?**

20 A. No. As I clearly demonstrated in my direct testimony, smaller utilities such as PWR have,
21 and require, higher common equity ratios than larger utilities. In this regard, the
22 Company's 59.92% common equity ratio is entirely reasonable for this case. Furthermore,
23 other regulatory commissions have accepted similar common equity ratios. For example,

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the Public Utilities Commission of California accepted common equity ratios of 70% for Great Oaks Water Company, 60% for Suburban Water Systems, 64.46% for San Gabriel Valley Water Company, and 57.10% for Liberty Park Water/Liberty Apple Valley. All of these companies are small utilities, just like PWR.

I have verified the reasonableness of the Company's common equity ratio by considering the historical capital structure ratios for the Water Group and with analysts' forecasts, which influence investor expectations. Historically, the small companies within the Water Group have employed a 53.9% common equity, while the large companies had a 45.0% ratio. I have also compared the Company's proposed common equity ratio to that of the Water Group based upon forecast data widely available to investors from Value Line. Those ratios are:

Company	2020	2021	2022	2024-26
American States Water	52.8%	54.5%	51.5%	46.5%
American Water Works	40.9%	41.0%	39.5%	39.0%
California Water	54.1%	50.5%	54.5%	59.0%
Essential Utilities	46.0%	46.0%	44.0%	45.0%
Middlesex Water	55.7%	57.0%	58.0%	60.0%
SJW Group	41.6%	46.5%	49.0%	62.0%
York Water Company	53.7%	55.5%	57.5%	62.5%
Average	49.3%	50.1%	50.6%	53.4%
Smaller Companies	54.1%	55.7%	55.7%	56.3%
Larger Companies	45.7%	46.0%	46.8%	51.3%

Source: The Value Line Investment Survey, October 8, 2021

As I established previously, there is a relationship between the size of a company and its common equity ratio. The Value Line forecasts substantiate this proposition. That is to say, the Value Line forecasts show that higher common equity ratios are necessary for

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smaller water companies. These forecasts show that the 59.92% common equity ratio for PWR is reasonable by reference to the forecast ratios of the Water Group given the fact that the Company is much smaller than the small companies in the Water Group. With the Company's much smaller relative size, its common equity ratio needs to be higher than the average shown for the smaller group of companies in the Water Group. Hence, the common equity ratio for PWR is clearly within the range of reasonableness, since common equity ratios of 60.0% for Middlesex Water and 62.5% for York Water are shown. That alone is sufficient to support the use of the Company's actual capital structure in this case.

Q. Mr. Garrett also provides capital structure ratios for other industries. Is this information useful?

A. No. There is nothing useful that can be obtained from the tabulation of debt ratios shown on Figure 12. Mr. Garrett has never established a nexus between the debt ratios he provides and the cost of equity. It is not appropriate to compare the debt ratios for thousands of diverse companies to PWR, without first establishing some level of comparability of these companies.

Q. What is Mr. Rothschild's position on capital structure?

A. Mr. Rothschild proposes a 49.26% common equity ratio. Certainly due to the Company's small size, its common equity ratio should be much higher. An issue not addressed by Messrs. Garrett and Rothschild is the fact that the proxy group capital structure ratios are from consolidated operations of the parent holding companies. Focusing solely on the public utility subsidiaries of these companies, the common equity ratios are usually higher than that revealed by the holding companies.

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Q. Is there any dispute regarding the Company's embedded cost of long-term debt?

A. Yes. Mr. Garrett has accepted the Company's proposed cost of long-term debt, which is 3.79%. Mr. Rothschild seems to accept the approach that the Company has proposed to determine its cost of debt, but he used erroneous inputs in his proposal. Mr. Rothschild has proposed to average the yield on Baa-rated public utility debt for 2019, 2020 and 2021, year to date ("YTD"). However, his 2021 interest rate of 2.03% is way off the mark because he altered the source of that yield. To be consistent with the 2019 and 2020 yields on Baa-rated public utility debt, the correct 2021 YTD rate is 3.38%. This makes the correct cost of debt using Mr. Rothschild's approach of 3.65% ($4.19\% + 3.39\% + 3.38\% = 10.96\% \div 3$), and not the 3.20% rate proposed by him.

PROXY GROUP

Q. Are there differences in the proxy groups utilized by the rate of return witnesses in this case?

A. Yes. Mr. Rothschild makes a deletion to my proxy group, while Mr. Garrett accepts my group. Mr. Rothschild drops Artesian Resources Corp. from the proxy group without adequate justification. Artesian is a small water company, not unlike York Water Company. If York is a valid member of the proxy group, then Artesian is likewise suitable for membership in the proxy group.

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COST OF COMMON EQUITY - DISCOUNTED CASH FLOW (DCF)

Q. The DCF model has been used by Mr. Rothschild, Mr. Garrett, and you as one method to measure the cost of equity. What is your position concerning the usefulness of the DCF method?

A. While the results of a DCF analysis should certainly be given weight, the use of more than one method provides a superior foundation for the cost of equity determination. Since all cost of equity methods contain certain unrealistic and overly restrictive assumptions, the use of more than one method will capture the multiplicity of factors that motivate investors to commit capital to an enterprise (*i.e.*, current income, capital appreciation, preservation of capital, level of risk bearing). The simplified DCF model makes the assumption that there is a single constant growth rate, there is a constant dividend payout ratio, that price – earnings multiples do not change, and that the price of stock, earnings per share, dividends per share and book value per share all have the same growth rate. We know from experience that those assumptions are not realistic, because the stock market reveals performance that is very different from the assumptions of the DCF.² Therefore, the use of multiple methods provides a more comprehensive and reliable basis to establish a reasonable equity return for PWR than does sole reliance on the DCF.

Q. What form of the DCF model has been employed in this case?

A. The constant growth form of the DCF model has been used by Mr. Rothschild, Mr. Garrett, and me. Mr. Rothschild also submits a non-constant DCF result that is simply not credible.

Q. Do the DCF results proposed by Mr. Rothschild provide a reasonable representation of the cost of equity?

² The growth rate variables shown on Schedules 8 and 9 of Exhibit PRM-1 shows that the assumption associated with the simplified DCF model are not reasonable.

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1 A. Not in my opinion. It is a fundamental tenet of finance that the cost of equity must be
2 higher than the cost of debt by a meaningful margin to compensate for the higher risk
3 associated with a common equity investment. As such, none of his returns can come close
4 to meeting this standard.

5 **Q. One of the features of Mr. Rothschild's direct testimony is his contention that when**
6 **stock prices are considerably higher than their book value, then the return that**
7 **investors expect to receive on their market prices is less than whatever is anticipated**
8 **on book value. Please respond.**

9 A. Mr. Rothschild makes this assertion on page 47 of his direct testimony. In his view, when
10 a company has a market-to-book ratio above 1, it is over earning. But such a claim is
11 unwarranted given the evidence of the history of market-to-book ratios I provide below.
12 Moreover, if this assertion were correct then it leads to the inevitable conclusion that if
13 investors expected to earn their required return, then stock prices would revert to their
14 book value. This would suggest, erroneously, that most utilities are over-earning and their
15 returns should be reduced to bring the market prices back to book value. However, the
16 market for stocks shows that Mr. Rothschild's assertion is baseless. In the long history of
17 market-to-book ratios for electric utilities since 1945, M/B ratios equal to 1.0 are unusual
18 and ratios of greater than 1.0 are quite common. The historical data show that it is unusual
19 for market prices to gravitate to book value. Indeed, in only about 11% of the years studied
20 did electric utility stock prices approximate book value. In 74% of the years, electric
21 utilities stock prices exceeded book value and sometimes by a substantial amount. The
22 average market-to-book ratio over the past 72 years is 143%.

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DCF GROWTH RATE

Q. As to the DCF growth component, what financial variables should be given greatest weight when assessing investor expectations?

A. The theory of the DCF holds that (1) the value of a firm's equity (*i.e.*, share price) will grow at the same rate as earnings per share with a constant P-E ratio and (2) dividend growth will equal earnings growth with a constant payout ratio. Therefore, to properly reflect investor expectations within the limitations of the DCF model, earnings per share growth, which is the basis for the capital gains yield and the source of dividend payments, must be given greatest weight. The reason that earnings per share growth is the primary determinant of investor expectations rests with the fact that the capital gains yield (*i.e.*, price appreciation) will track earnings growth with a constant price earnings multiple (a key assumption of the DCF model). It is also important to recognize that analysts' earnings growth rate forecasts significantly influence investor growth expectations. Moreover, it is instructive to note that Professor Myron Gordon, the foremost proponent of the DCF model in public utility rate cases, has established that the best measure of growth for use in the DCF model are forecasts of earnings per share growth.³ These growth rates relate specifically to each company whose cost of equity is being analyzed.

Q. In his direct testimony, Mr. Rothschild relies principally on retention growth in his constant growth DCF analysis. Please discuss the limitations of this approach.

A. Retention growth, along with external financing growth, is another means of describing

³ "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management*, Spring 1989 by Gordon, Gordon & Gould. "We have compared the accuracy of four methods for estimating the growth component of the discounted cash flow yield on a share: past growth rate in earnings (KEGR), past growth rate in dividends (KDGR), past retention growth rate (KBRG), and forecasts of growth by security analysts (KFRG)...we have three observations to make. First, the superior performance by KFRG should come as no surprise. All four estimates of growth rely upon past data, but in the case of KFRG a larger body of past data is used, filtered through a group of security analysts who adjust for abnormalities that are not considered relevant for future growth."

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1 book value per share growth. Other factors also contribute to earnings growth that is not
2 accounted for by the retention growth formula, such as sales of new common stock that
3 Mr. Rothschild has included in his DCF growth rate analysis, reacquisition of common
4 stock previously issued, changes in financial leverage, acquisition of new business
5 opportunities, profitable liquidation of assets, and repositioning of existing assets. In my
6 view, book value per share growth, or its surrogate retention growth, does not represent
7 the proper financial variable to be considered when selecting the DCF growth component.

8 **Q. Do the DCF results proposed by Mr. Rothschild provide a reasonable representation**
9 **of the cost of equity?**

10 A. Not in my opinion. Mr. Rothschild indicates that his preferred method for selecting the
11 growth rate component of the constant growth DCF is the "b x r" approach, i.e., the
12 retention growth method. This special form of the DCF, as described by Mr. Rothschild,
13 merely adjusts his assumed return on book common equity by the difference between the
14 dividend yield on book value and the dividend yield on market value. The table provided
15 below shows how his DCF result (using year-end and average market prices) can be
16 expressed from the values shown on Schedule ALR-3. The table shows how Mr.
17 Rothschild moves from the return that investors expect the Water Group to actually
18 achieve, i.e., 10.80%, to a much lower DCF return.

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	Year Ending 8/31/2021	As of 8/31/2021
Return on Equity (Line 2c)	10.80%	10.80%
Dividend Yield on Book Value (Line 2b)	-6.17%	-6.15%
Dividend Yield on Market Value (Lines 1 & 6)	<u>1.78%</u>	<u>1.57%</u>
Result	6.41%	6.22%
New financing growth (Line 4)	<u>1.64%</u>	<u>1.93%</u>
Average DCF return	<u><u>8.05%</u></u>	<u><u>8.15%</u></u>

1 Another way to observe the flaw in Mr. Rothschild's approach is to observe that he adds
2 a dividend yield calculated on market price to a retention growth rate based on book value.
3 A key component of retention growth is his assumed return on book common equity. And
4 from that choice, he develops a retention growth that is highly susceptible to his original
5 selection of the return on equity.

6 In his testimony, Mr. Rothschild acknowledges that his Water Group is projected
7 to earn a 10.80% return on equity, but instead he proposes a DCF return of just 8.05% or
8 8.15%. He does not and cannot explain why an investor expected return of 10.80% should
9 be reduced to 8.05% or 8.15%, other than through the erroneous and rejected theory that
10 market/book ratios in excess of 1.0 indicate earning more than the cost of capital. As
11 shown above, the approach taken by Mr. Rothschild is clearly inconsistent with the
12 traditional form of the DCF model. It is also based on Mr. Rothschild's incorrect view
13 that market-to-book ratios ("M/B") in excess of 1.0 mean that companies are earning in

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1 excess of the cost of capital. If 10.80% is an appropriate projected return on equity, it
2 should not be artificially reduced to try to force stock prices down to book value.

3 **Q. Mr. Rothschild submits an alternative calculation as his additional method to**
4 **measure the cost of equity. Is this data useful in this case?**

5 A. Only to show that his constant-growth DCF model results are unrealistic. As a preliminary
6 matter, his alternative two-stage DCF result is 5.80% or 6.03%, which demonstrates the
7 unreasonable results of his constant growth DCF model. Mr. Rothschild uses book value
8 per share growth as a key input in his alternative form of the DCF, which makes this
9 method invalid as an alternative measure of the cost of equity.

10 **Q. In his testimony, Mr. Garrett does not assemble any growth rates that are specific to**
11 **his proxy group of companies. Does this follow the traditional approach for applying**
12 **the DCF model?**

13 A. No. While Mr. Garrett acknowledges that various sources exist for company-specific
14 growth rates, i.e., Zacks, Value Line, and Bloomberg, he does not look at them. The only
15 growth rates that are specific to his water company proxy group are those taken from my
16 testimony. His approach to looking at GDP growth is certainly alien to all DCF analysis
17 that is familiar to most regulatory commissions. On this basis alone, the DCF analysis
18 submitted by Mr. Garrett in this case should be dismissed. I say this because, as I
19 previously explained, Myron Gordon established that analysts' forecast of earnings
20 growth are the correct input for the DCF for each member of the proxy group.

21 **Q. Do the DCF growth rates proposed by Mr. Garrett provide a reasonable input in**
22 **the cost of equity analysis using the DCF model?**

23 A. No. Mr. Garrett indicates that his method for analyzing the growth rate component rests
24 on: (i) nominal GDP, (ii) real GDP, (iii) inflation, and (iv) the risk-free rate. There are

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1 many problems with his approach. First, the combination of the real GDP growth and
2 inflation equals nominal GDP, i.e. $(1.018) * (1.020) = (1.0380 - 1) = 3.8\%$. Hence, two of
3 his input variables are double counted when he separately considers economical GDP
4 growth. Second, the risk-free rate provides no guide of the growth that a company can
5 realize in its earnings. Earnings grow occurs through revenue growth, net of: O&M,
6 depreciation, taxes, interest, and dividend payments. None of these factors are addressed
7 with the risk-free rate of return. Third, Mr. Garrett is essentially developing a generic
8 growth rate that would apply to any, or all companies, whether they are regulated or non-
9 regulated companies. We all know that each company has a unique company-specific
10 growth rate. His approach is simply incompatible with the basic concept of the DCF,
11 where future cash flows for each company are systematic related to one another by a
12 constant growth rate. It is also incompatible with the use of the growth rates of a
13 comparable barometer group of companies to meet the requirement that a utility is to be
14 permitted to earn a return equal to comparable companies. Remember, the DCF equation
15 is $P = D / (k-g)$. Mr. Garrett's growth rate does not fit within this equation.

16 **Q. What DCF growth rate did Mr. Garrett actually use in his DCF?**

17 A. He used one of my growth rates taken from analysts' projections. But in doing so he
18 introduced a downward bias to his result because he adopted the lowest of the forecast
19 growth rates, I provided. If he used a balance approach, he would have also included DCF
20 results using a 7.15% growth rate. and a 7.93% growth rate. The resulting DCF
21 calculations would provide an 8.85% and 9.64% DCF returns.

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LEVERAGE ADJUSTMENT

1
2 **Q. Mr. Garrett criticized the leverage adjustment that you propose to account for the**
3 **divergence of market capitalization and book value capitalization. Please comment.**

4 A. Mr. Garrett never really refutes my leverage adjustment. Indeed, he employs my leverage
5 adjustment approach through the use of the Hamada formula to unlever and relever betas
6 as part of his capital structure analysis, thereby validating my approach for the leverage
7 adjustment in the DCF model.

8 **Q Mr. Rothschild criticized the leverage adjustment that you propose to account for**
9 **the divergence of market capitalization and book value capitalization. Please**
10 **comment.**

11 A. Mr. Rothschild claims that the market value capital structure and the book value capital
12 structure are two completely different ways of measuring the same thing. But it must be
13 recognized that, in order to make the DCF results relevant in the rate-setting context, the
14 market-derived cost rate cannot be used without modification. The importance of the
15 leverage modification to the DCF results was fully supported in my direct testimony,
16 wherein it was shown that the market value of the equity in the Water Group's
17 capitalization was much higher than its book value. The market value common equity
18 ratio was 72.15% compared to a book value common equity ratio 50.17%. The leverage
19 adjustment is necessary to make the market-derived DCF results applicable in the rate-
20 setting context. Because the market-based cost rate is determined based on less financial
21 risk than that reflected in the ratemaking capital structure, and because increased financial
22 risk justifies a higher return on equity, it is necessary to account for the higher financial
23 risk that arises from the lower common equity ratio measured by book value capitalization.

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1 Q. Do you agree with Mr. Rothschild's contention that the market value capital
2 structure and the book value capital structure are two completely different ways of
3 measuring the same thing?

4 A. No. As Professors Modigliani and Miller proved 50 years ago (as discussed on pages 24-
5 25 of my direct testimony), the amount of leverage, or proportion of debt, in a firm's
6 capital structure is directly related to the firm's financial risk and cost of equity. Mr.
7 Rothschild's analogy to the measurement of weight on two scales (see page 94 of his
8 testimony) is no analogy at all. Unlike weight, there is only one scale for measuring
9 financial risk and that is the proportion of leverage in a firm's capital structure. A firm's
10 financial risk changes when the quantities of debt and equity capital, on which the
11 proportion is based, are changed. For the Water Group, the average market value of their
12 debt is \$2,739,391 and the book value of their debt is \$2,302,124. Both of these measures
13 are stated as dollar values; there has been no change in the units of measurement.
14 Likewise, for their equity. The average market value of the Water Group's common equity
15 is \$6,160,579 and the corresponding book value is \$1,784,618. Again, both are stated in
16 dollars and there has been no change in the units of measurement. A measurement of
17 financial risk that is based on a market-value capitalization cannot be applied directly to
18 book-value capitalization if there is a material difference attributed to a change in financial
19 risk between the two. Unlike weight, where the relationship between the scales of
20 measurement is fixed (*i.e.*, one-pound equals 0.45359 kilograms), the financial risk
21 associated with a market-value capitalization can be higher or lower than the financial risk
22 associated with a book-value capitalization, depending on the quantities, stated in dollars,
23 of debt and equity measured and their relative proportion to the total capitalization.
24 Financial risk is measured as a percent of fixed-cost (*i.e.*, senior) capital. That is to say,

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1 the quantities that are used to measure financial risk account for the different quantities of
2 debt and equity that result from market and book valuations of capital.

3 According to Mr. Rothschild's analogy, one loses weight by merely changing the
4 calibration of the scale from pounds to kilograms. Mr. Rothschild's position that a cost of
5 equity derived from market-value capitalizations may be applied to a book-value
6 capitalization is just like saying one kilogram is the same as one pound. This is, of course,
7 incorrect, just as it is indisputable that there is more financial risk associated with a 50.17%
8 common equity ratio than there is with a 72.15% common equity ratio. The risk-adjusted
9 return associated with a higher market-value capitalization is different than and generally
10 lower than its risk-adjusted return associated with a book-value capitalization. Indeed,
11 Mr. Rothschild's own studies support this proposition. Using his adjustment noted in
12 Source [F] shown on Exhibit ALR-1, the adjustment would be 0.49% ($72.14\% - 59.92\%$
13 $= 12.22\% \times 0.04\%$). Although less than my leverage adjustment of 0.97%, it does
14 establish the propriety of the adjustment. Therefore, in order to apply a measurement of
15 a return measured based on a firm's market-value capitalization to a book-value
16 capitalization, the return measurement must be adjusted before it is applied to the firm's
17 capitalization measured based on book value. All returns derived from the market models
18 of the cost of equity are related to the price of stock established by investors and not based
19 on book values.

COST OF COMMON EQUITY - CAPITAL ASSET PRICING MODEL

20
21 **Q. Do you have concerns regarding Mr. Rothschild's and Mr. Garrett's applications**
22 **of the CAPM?**

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1 A. Yes. Mr. Rothschild's CAPM analysis understates the cost of equity for a number of
2 reasons: (i) his use of the yield on 3-month Treasury Bills, (ii) his failure to use leveraged
3 adjusted betas, and (iii) his failure to make a size adjustment. The results of Mr. Garrett's
4 CAPM approach are simply not credible.

5 **Q. Mr. Rothschild has also performed a CAPM calculation in addition to his constant**
6 **growth and non-constant growth DCF models. Are the results of his CAPM useful**
7 **in setting the Company's equity return in this case?**

8 A. No. There are a variety of problems with Mr. Rothschild's CAPM approach which makes
9 it not useful in this case. He makes CAPM calculations that produce results in the range
10 of 6.22% to 6.81% with spot data and 6.04% to 7.25% with average data. By any
11 reasonable standard, such low returns are simply not credible. All of Mr. Rothschild's
12 CAPM results are below his DCF returns. In contrast, I have provided CAPM results that
13 exceed the DCF. Mr. Rothschild does not use betas that are available to investors, but
14 instead uses a "phantom" beta that invalidates his CAPM. Mr. Rothschild calculates
15 "option implied betas" that have not and could not have any influence on the types of
16 returns investors could expect using the CAPM, such as the Value Line betas do. Rather
17 than use betas that are available to or used by investors, Mr. Rothschild has manufactured
18 his own betas. It is well known that investors use the Value Line data. He says he follows
19 the Value Line approach for calculating betas, but he ignores the actual Value Line betas.
20 This makes no sense. There is no evidence that the betas calculated by Mr. Rothschild
21 have any bearing on investor expected returns, and in setting rates of return that is what is
22 relevant. Even if Mr. Rothschild was correct that his calculations are valid, investors
23 simply could not have relied on them. The Value Line data is relied upon by investors.
24 As such, the Value Line betas should be used directly in the cost of capital computation.

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To augment the Value Line betas with other information that investors do not use is not appropriate, regardless of the theoretical underpinnings of the modifications.

Q. How should these results be used in the CAPM?

A. The risk-free rate of return should be calculated with the data that I present in my direct testimony. I have corrected Mr. Rothschild's CAPM by using the Value Line betas and have developed a more reasonable market return of 13.10%, which provides a 9.78% market risk premium.⁴ The size adjustment of 1.02% must also be incorporated into the CAPM.

$$R_f + \beta (R_m - R_f) + size = K$$

$$\text{Water Group} \quad 2.75\% + 0.78 (9.78\%) + 1.02\% = 11.40\%$$

Q. At pages 98-99 of Exhibit PRM-1, Mr. Rothschild also challenges the adjustment that you made to the results of the CAPM for the size of the Water Group. Please respond.

A. A size adjustment is necessary because the financial impact of changes in specific dollar amounts of revenues and costs have a magnified influence on a small company because there are fewer dollars over which those revenues or costs can be spread. The SBBI/Morningstar Yearbook clearly demonstrates that the simple CAPM does not reflect the return that is associated with small size. As Ibbotson has stated:

The security market line is based on the pure CAPM without adjusting for the size premium. Based on the risk (or beta) of a security, the expected return should fluctuate along the security market line. However, the expected returns for the smaller deciles of the NYSE/AMEX/NASDAQ lie above the line, indicating that

⁴ The Value Line forecast return is 10.68% (1.9% + (1.40²⁵ - 1)) and the S&P 500 forecast return is 15.51% (1.41% (1.07) + 14.0%), which results in a 13.10% (10.68% + 15.51% - 26.19 ÷ 2) less the 2.75% risk-free rate of return provides a 10.35% market risk premium that is averaged with the historical market risk premium (10.35% + 9.21% = 19.56% ÷ 2 = 9.78%).

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these deciles have had returns in excess of those appropriate for their systematic risk.

Q. How does size affect the financial performance of a small company?

A. Examples of the financial consequences of external factors that can influence the financial performance of a small company include loss of a large customer and the effect of unexpected changes in expense.

Q. Mr. Garrett has also performed a CAPM calculation in addition to his DCF analysis. Are the results of his CAPM useful in setting the Company's equity return in this case?

A. No. There are a variety of problems with Mr. Garrett's CAPM approach which makes it not useful in this case. He makes CAPM calculations that produce results of 6.3%, which on its face is simply not credible. First, Mr. Garrett uses a backward-looking yield on 30-year Treasury bonds. Second, the 5.6% equity risk premium ("ERP") selected by Mr. Garrett is well off the mark. Furthermore, the implied total market return using Mr. Garrett's inputs is just 7.51% (1.91% + 5.6%), which is clearly incompatible with actual stock market returns of 18.40% in 2020, 15.25% YTD in 2021, and 12.16% on average for the past 95 years (1926-2020).

COST OF COMMON EQUITY - RISK PREMIUM ANALYSIS

Q. Do you believe the Risk Premium method provides significant evidence of the cost of equity?

A. Yes. In my opinion, the Risk Premium results should be given serious consideration. The Risk Premium method is straight-forward, understandable, and has intuitive appeal because it is based on a company's own borrowing rate. The utility's borrowing rate provides the foundation for its cost of equity which must be higher than the cost of debt

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1 in recognition of the higher risk of equity (see PWR testimony at page 28). So, while Mr.
2 Rothschild and Mr. Garrett decline to use the Risk Premium approach to measure the
3 Company's cost of equity, it is an approach that provides a direct and complete reflection
4 of a utility's risk and return because it considers additional factors not reflected in the beta
5 measure of systematic risk. It is particularly useful when investors expect changes in the
6 cost of debt prospectively, which is currently the expectation of investors, as I have
7 explained in my testimony at pages 28-32. Indeed, the Risk Premium approach provides
8 for direct reflection of prospective interest rates in the model and therefore should be given
9 weight in determining the equity cost rate in this case.

10 **Q. Please respond to Mr. Garrett's criticisms of your Risk Premium approach.**

11 A. While Mr. Garrett declines to use the Risk Premium approach to measure the Company's
12 cost of equity, it is an approach that provides a direct and complete reflection of a utility's
13 risk and return because it considers additional factors not reflected in the beta measure of
14 systematic risk. In fact, it is precisely because investors consider the results of other
15 methods that they too should be used in addition to the DCF in the development of the
16 cost of equity in this proceeding. As I explained in my direct testimony, we are facing the
17 prospect of increasing interest rates for the future and the market has increased yields on
18 debt instruments. I incorporated the trend toward higher interest rates when I developed
19 my Risk Premium cost of equity of 10.50% (3.75% interest rate on A-rated public utility
20 bonds + 6.75% equity risk premium).

COST OF COMMON EQUITY - COMPARABLE EARNINGS APPROACH

22 **Q. Please respond to the criticism of the Comparable Earnings approach.**

23 A. The underlying premise of the Comparable Earnings method is that regulation should

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1 emulate results obtained by firms operating in competitive markets and that a utility must
2 be given an opportunity cost of capital equal to that which could be earned if one invested
3 in firms of comparable risk. For non-regulated firms, the cost of capital concept is used
4 to determine whether the expected marginal returns on new projects will be greater than
5 the cost of capital, *i.e.*, the cost of capital provides the hurdle rate at which new projects
6 can be justified, and therefore undertaken. Further, given the 10-year time frame (*i.e.*, five
7 years historical and five years projected) considered by my study, it is unlikely that the
8 earned returns of non-regulated firms would diverge significantly from their cost of
9 capital.

10 The Comparable Earnings approach satisfies the comparability standard
11 established in the *Hope* case. In addition, the financial community has expressed the view
12 that the regulatory process must consider the returns that are being achieved in the non-
13 regulated sector to ensure that regulated companies can compete effectively in the capital
14 markets. Moreover, in a 1994 study that addressed the ROE issue, John Olson (then with
15 Merrill Lynch) established that ROEs from non-regulated companies provide better
16 assessment of investor requirements than those available for regulated utilities.⁵

SUMMARY

17
18 **Q. Please summarize your rebuttal testimony.**

19 A. It is my opinion that the equity allowances proposed by Mr. Rothschild and Mr. Garrett
20 significantly understate the cost of common equity for PWR. In an environment of
21 prospectively higher interest rates and Company-specific risk factors, an opportunity to

⁵ "Natural Gas: The Case for ROE Reform," John E. Olson First Vice President, Merrill Lynch & Co., October 11, 1994.

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1 earn a cost of equity of 10.95%, including recognition of management performance, is
2 reasonable for PWR. Furthermore, Mr. Garrett's capital structure proposal should be
3 rejected for all the reasons previously stated. Indeed, PWR capital structure proposed by
4 the Company is entirely reasonable for this case. Finally, recognition of the exemplary
5 performance of the Company's management should be recognized by the Commission.

6 **Q. Does this conclude your rebuttal testimony?**

7 **A. Yes, it does.**